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Case Report

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Treatment of wedge-shaped lateral incisors with direct composite veneer restorations: two case presentations

Bahar Yavuz, Mehmet Salık, Şeyhmus Bakır

Department of Restorative Dentistry, Faculty of Dentistry, Dicle University, Diyarbakır, Turkiye

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Corresponding Author: Bahar Yavuz, bhryvz1084@gmail.com

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ABSTRACT

Wedge-shaped lateral incisors are teeth associated with dental anomalies, often encountered in maxillary teeth, characterized by being smaller than normal and having cylindrical or pointed shapes. For achieving an aesthetic appearance in treatment, ceramic or composite restorations are commonly preferred. However, ceramic restorations are not recommended as the primary choice for treating wedge-shaped lateral teeth due to their tendency to cause more substance loss in dental tissues, higher costs, and challenging repairs compared to composite restorations. In cases where patients presented with bilateral wedge-shaped lateral incisors seeking aesthetic improvements, various treatment options were explained to them, and after evaluating their preferences, the decision was made to use direct resin composite restorations for aesthetic enhancement. The color of the teeth was determined, and an appropriate composite resin was selected. Following the completion of the restorations, finishing and polishing procedures were applied. The purpose of presenting these two cases is to demonstrate the use of direct composite veneer restorations in achieving aesthetic treatment for wedge-shaped lateral incisors.

Keywords: Dental aesthetics, composite dental resin, tooth anomalies, composite, wedge-shaped lateral, diastema

INTRODUCTION

Wedge-shaped lateral incisors, which can be associated with dental anomalies, are often smaller and have cylindrical or pointed shapes, commonly observed in maxillary teeth.1 Wedge-shaped laterals are more frequently encountered in females compared to males, and the prevalence of unilateral and bilateral cases is similar. In cases of unilateral occurrence, the prevalence on the left side (0.4%) is twice that on the right side (0.2%).[1-2] Besides negatively impacting the aesthetics of the smile, the shape, size, and position of wedge-shaped lateral teeth can lead to orthodontic and periodontal issues.[3-4] With the recent emphasis on minimal intervention dentistry, restorative methods that achieve success with the least tissue loss are commonly employed.[5] Modern composite resins can be applied to dental tissues with minimal substance loss.[6]

The aim of these two case presentations is to demonstrate the use of direct composite restorations in achieving aesthetic treatment for wedge-shaped lateral incisors.

CASE 1

A 20-year-old patient with bilateral wedge-shaped lateral incisors presented to our clinic with aesthetic expectations. After intraoral and radiological examinations, treatment options were explained to the patient, and based on the patient's preference, it was decided to apply direct composite veneers. After determining the tooth color, an appropriate composite resin (A2, OA2 Tokuyoma Estelite Σ Quick [Tokyo, Japonya]) was selected (Figure 1 and Figure 2).

Figure 1. Appearance of wedge-shaped lateral incisors while smiling before treatment

Figure 2. Wedge-shaped lateral incisors of the patient before treatment

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Before starting the treatment, a polishing procedure was performed. Total acid etching (Dentsply condıtıoner 36 acid jel 30 seconds) was carried out without tooth preparation. Following the acid etching, bonding (tokuyoma bonding force 11) application was applied, and 10 seconds for polymerization Led E plus polymerization filling device applied. The teeth were shaped with composite resin (A2, OA2 Tokuyoma Estelite Σ Quick [Tokyo, Japonya], 40 seconds for polymerization Led E plus polymerization filling device) to achieve a natural form, completing the treatment in a single session. After the application of composite resin was completed, the surfaces of the restorations were refined using special finishing burs and polishing disks. At the end of the treatment, the importance of oral hygiene and the rules to be followed regarding the restorations were explained to the patient (Figure 3).

Figure 3. Due to the patient being away from the city for an extended period, our opportunity to take photos of the lateral teeth was limited during this session. Additionally, the presence of bleeding in the lower anterior region occurred as a result of the necessary removal of tartar during this session

CASE 2

A 23-year-old patient with bilateral wedge-shaped lateral incisors presented to our clinic with aesthetic expectations. After intraoral and radiological examinations, treatment options were explained to the patient, and based on the patient's preference, it was decided to apply direct composite veneers. After determining the tooth color, an appropriate composite resin (OA2 Tokuyoma Estelite Σ Quick [Tokyo, Japonya]) was selected and steps were applied as in case 1 (Figure 4).

Figure 4. The patient's wedge-shaped lateral incisors before the treatment

The total acid etching procedure was performed without tooth preparation. Following the bonding application, the teeth were shaped with composite resin (OA2 Tokuyoma Estelite ∑ Quick8 [Tokyo, Japonya]) to achieve a natural form, completing the treatment in a single session. Immediately afterward, the surfaces of the restorations were refined using special finishing burs and polishing disks. At the end of the treatment, the patient was instructed on the importance of oral hygiene and the rules to be followed regarding the restorations (Figure 5).

Figure 5. The patient's lateral teeth after the treatment

DISCUSSION

Esthetic problems in patients with wedge-shaped incisors may arise from both misshapen teeth and diastemas. Direct composite applications offer a minimally invasive, single-session treatment option for correcting shape irregularities and closing diastemas. In contemporary dentistry, restorative materials, particularly composite resins, have advanced significantly. The shortened working times of composite resins, increased resistance to chewing forces due to evolving adhesion technology, minimized color changes, and the ability to select colors at the patient's chairside are among the significant advantages of these materials.[7]

Wedge-shaped lateral incisors, when left untreated, can lead to aesthetic, periodontal, and orthodontic issues. Their smaller size and shape, which can disrupt the smile and harmony with other teeth, represent a common dental form abnormality that can negatively impact patient psychology.[8,11] Direct composite applications provide a minimal intervention, single-session, and cost-effective treatment option for correcting shape irregularities and diastemas. The advantages of modern dental restorative materials, such as composite resins, include shortened working times, increased resistance to chewing forces through advanced adhesion technology, minimized color changes, and the ability to select colors at the patient's chairside.[7]

Wall et al.[9] used resin composite laminate veneers in 68 patients to mask color changes or hypoplasia in their anterior teeth. The technique provided acceptable improvement in patients' aesthetics and function over a two-year period. The results of this clinical study showed a significant improvement in the condition of patients' gingiva between the initial evaluation visit and the placement of veneers. However, it

was observed that veneer restorations had harmful effects on the gingival tissues of patients who could not maintain oral hygiene. The condition of the gingival tissue was found to be associated with irregularities in the veneer's gingival margin. However, when evaluated as a whole, there was no correlation between marginal irregularity and gingival condition.[12]

Other advantages of direct composite restorations include lower cost compared to an indirect technique and the reversible nature of the procedure, allowing for future treatment approaches. Another significant advantage of resin composite restorations over other restorative materials is the possibility of intraoral repair.[10,13]

CONCLUSION

The use of composite resins in the treatment of wedge-shaped lateral incisors has yielded clinically satisfactory results in terms of physical properties, marginal integrity, and aesthetics. Considering the current findings, direct composite laminate veneer restorations can be considered as the first choice for the treatment of wedge-shaped lateral incisors.

ETHICAL DECLARATIONS

Informed Consent

All patients signed and free and informed consent form.

Referee Evaluation Process

Externally peer-reviewed.

Conflict of Interest Statement

The authors have no conflicts of interest to declare.

Financial Disclosure

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Author Contributions

All of the authors declare that they have all participated in the design, execution, and analysis of the paper, and that they have approved the final version.

REFERENCES

1. Karakaş M, Arısu HD. Kama lateral dişlerin direkt kompozit veneer restorasyonlarla tedavisi: olgu sunumu. *Selcuk Dent J.* 2022;9(3):901-904.
2. Fang H, Hong H, Peter N, Wassim B. Prevalence of peg-shaped maxillary permanent lateral incisors: a meta- analysis. *Am J Orthod Dentofacial Orthop.* 2013;144(1):97-109.
3. Ucheonye IJ, Tokunbo AA. Prevalence of peg-shaped laterals in south western Nigeria: a comparison of field and clinic findings. *Internet J Dent Sci.* 2009;8:2.
4. Townsend CL. Resective surgery: an esthetic application. *Quintessence Int.* 1993;24(8):535-542.
5. Korkut A, Yanıkoğlu F, Tağtekin D. Ön bölgedeki defektlere direkt kompozit rezin restorasyonlarla estetik yaklaşımlar: 3 olgu sunumu. *Atatürk Üniv Diş Hekimliği Fak Derg.* 2012;6:7-15.
6. Peumans M, Van Meerbeek B, Lambrechts P, Vanherle G. The 5-year clinical performance of direct composite additions to correct tooth form and position. I. Esthetic qualities. *Clin Oral Investig.* 1997;1(1):12-18.
7. Yalçınkaya H, Ülker HE. Kama lateral anomalisinin kompozit restorasyonlarla tedavisi: olgu sunumu. *Selcuk Dent J.* 2022;9(4):43-46.
8. Mittal N, Mohandas A. Management of peg-shaped lateral with new minimal invasive restorative technique- componeer: a case report. *Indian J Dent Adv.* 2018;10(1):53-55.
9. Walls AW, Murray JJ, McCabe JF. Composite laminate veneers: a clinical study. *J Oral Rehabil.* 1988;15(5):439-454.
10. Magne P, Belser UC. Porcelain versus composite inlays/onlays: effects of mechanical loads on stress distribution, adhesion, and crown flexure. *Int J Periodontics Restorative Dent.* 2003;23(6):543-555.
11. Omeish N, Nassif A, Feghali S, Vi-Fane B, Bosco J. Esthetic and functional rehabilitation of peg-shaped maxillary lateral incisors: practical recommendations. *Clin Case Rep.* 2022;10(3):e05507.
12. Süsgün Yıldırım Z. Şekil ve konum bozukluğu gösteren maksiller anterior dişlere direkt kompozit rezin ile estetik düzenlemeler: 4 olgu sunumu. *Selcuk Dent J.* 2019;6(2):182-189.
13. Fahl Jr N, Ritter AV. Composite veneers: the direct-indirect technique revisited. *J Esthet Restor Dent.* 2021;33(1):7-19.